



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,165	11/14/2003	Krishnan Chari	85500KNM	9809

7590

09/12/2006

Paul A. Leipold
Patent Legal Staff
Eastman Kodak Company
343 State Street
Rochester, NY 14650-2201

EXAMINER

GROSS, CHRISTOPHER M

ART UNIT	PAPER NUMBER
----------	--------------

1639

DATE MAILED: 09/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/713,165

Applicant(s)

CHARI ET AL.

Examiner

Christopher M. Gross

Art Unit

1639

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 03 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 1-12, 20, 21, 25 and 30-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-20, 22, 24, 26-29 and 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/14/2003</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Responsive to communications entered 8/3/2006. Claims 1-34 are pending. Claims 1-12,20,21,25,30-33 are withdrawn. Claim 34 was added by a preliminary amendment on 8/3/2006. Claims 13-20,22-24,26-29 and 34 are examined herein.

Election/Restrictions

1. Applicant's election without traverse of group II (claims 13-24, 26-29) and the species: "CD-1," structure shown on page 9 of the specification from claim 13; "glass" from claim 17; "100-1000000" from claims 19-21; "chemical" from claims 25-26 in the reply filed on 8/3/2006 is acknowledged. A telephone call to Lynne Blank on 8/22/2006 completed the species election with "nucleic acid" from claim 27.

Claims 1-12, 20,21,25,30-33 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention or species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 8/3/2006.

Priority

This application has a filing date of 11/14/2003. Applicant makes no claim for the benefit of any prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c).

Specification

Art Unit: 1639

2. The abstract of the disclosure is objected to because of the embedded chemical structure, which is not allowed. Correction is required. See MPEP § 608.01(b).

Information Disclosure Statement

3. The information disclosure statement filed 11/14/2003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. The copy of the Nature Biotech reference provided by applicant has missing pages.

4. The information disclosure statement entered 11/14/2003 is objected to because authors name(s) are missing from the non-patent document [See MPEP 609.01, (B)(1)(e)(v)] and the patent applications are not listed with the application serial number and filing date [See MPEP 609.01, (B)(1)(e)(iii)]. The Examiner has **not** initialed the Nature Biotech reference and attorney docket nos. 85501 and 85502 for the above reasons.

5. In the interest of compact prosecution, the Diehl applications (attorney docket nos. 85501 and 85502) have been have been considered in *full* via their subsequently published applications and the pertinent bibliographic information has been transferred to PTO form 892, included with this Office Action.

Claim Rejections - 35 USC § 102

Art Unit: 1639

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 13-15,17-19,22-24,28 and 29 rejected under 35 U.S.C. 102(b) as being anticipated by Bagchi et al (US Patent 5,055,379).

The claimed invention is drawn to a microarray comprising:

- (a) a substrate coated with a composition comprising
- (b) a gelling agent or a precursor to a gelling agent and microspheres;
- (c) the microspheres containing a dye represented by formula (I) [shown

on page 4 of the specification]

Claims 14-15,17-19,22-24,28 and 29 represent variations thereof.

Bagchi et al teach, throughout the document and especially column 1, line 49, and figures 1 and 2 (see legend in column 42, lines 46-65), a photolithographic array comprising gelatin grafted particles (microspheres) loaded with a dye which are coated on a substrate. The array and gelling agent of Bagchi et al reads on claim 13 parts (a) and (b).

Bagchi et al teach in column 41 under "cyan dye" a structure reading on the genus of claim 13 part (c).

The gelatin of Bagchi et al is taken as the same as set forth in claim 14.

Art Unit: 1639

Bagchi et al teach in column 41 under "grafting of gelatin onto the dye-loaded latex dispersion" the particles comprise chemically reactive sites reading on claim 15.

Bagchi et al teach in column 39 lines 9-20 various substrate materials including glass (elected species), reading on claim 17 and poly(alkyl methacrylates), which are flexible and read on claim 18.

Bagchi et al teach in column 39 lines 9-20 various substrate materials including glass (elected species), reading on claim 17 and poly(alkyl methacrylates), which are flexible and reads on claim 18.

Bagchi et al teach in claim 2, the particles as having a diameter of 10000 nm, and therefore, absent evidence to the contrary 1,000,000 particles are present per square cm [1 square cm =10,000,000 square nm], therein reading on the concentration of 100-1,000,000 microspheres per square cm (elected species) of claim 19.

Bagchi et al teach in column 42, lines 25-65 that following gelatin grafting to the particles, the mixture is immobilized by photo crosslinking on a substrate, reading on claim 22. The dye sites on the particles of Bagchi et al are capable of crosslinking and reads on the active sites of claim 23 and furthermore represents an organic moiety connected to an inorganic bichromate species, reading on claim 24.

The particles of Bagchi et al, shown schematically in figure 2 are randomly distributed, thus reading on claim 28. The array of Bagchi et al is prepared on a

Art Unit: 1639

flat surface (element 28 of figure 1) which does not bear sites capable of physical or chemical interaction with the particles, reading on claim 29.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 13-15,17-19,22-24,28, 29 and 16, 26,27 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Bagchi et al** (US Patent 5,055,379) in view of **Chrisey et al** (1996 Nucleic Acids Research 24:3040-3037).

Bagchi et al is relied on as above.

Bagchi et al do not teach bioreactive chemically surface active sites capable of interacting with a nucleic acid (elected species) as set forth in claim 16,26 and 27.

Chrisey et al teach, throughout the document and especially figure 1, chemistry for loading a surface with oligonucleotides (i.e. nucleic acid, elected species) capable of hybridizing with fluorescently labeled complementary strands.

It would have been *prima facie* obvious for one of ordinary skill in the art, at the time the claimed invention was made, to utilize the oligonucleotide surface chemistry per **Chrisey et al** with the array comprising gelatin grafted particles

Art Unit: 1639

(microspheres) loaded with a dye which are coated on a substrate per Bagchi et al.

One of ordinary skill in the art would have been motivated to use the oligonucleotide surface chemistry per Chrisey et al with the array comprising gelatin grafted particles (microspheres) loaded with a dye which are coated on a substrate per Bagchi et al because it would provide more distinct features (complementary strand binding sites), via less "dye wandering," as noted by Bagchi et al in column 1, lines 25-56.

One of ordinary skill would have had a reasonable expectation of success using the nucleic acid surface chemistry per Chrisey et al with the array comprising gelatin grafted particles (microspheres) loaded with a dye which are coated on a substrate per Bagchi because both photolithography and immobilization of oligonucleotides is well established in the art.

8. Claims 13-15,17-19,22-24,28, 29 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Bagchi et al** (US Patent 5,055,379).

Bagchi et al teach in column 41 under cyan dye, a structure which is virtually identical to elected species CD-1, however with the addition of a methyl group ortho to the azomethine functional group, and according to MPEP 2144.09: compounds which are position isomers (compounds having the same radicals in physically different positions on the same nucleus) or homologs (*compounds differing regularly by the successive addition of the same chemical group, e.g., by -CH₂- groups*) are generally of sufficiently close structural similarity that there

Art Unit: 1639

is a presumed expectation that such compounds possess similar properties. In re Wilder, 563 F.2d 457, 195 USPQ 426 (CCPA 1977).

Absent evidence to the contrary, the cyan dye derivative of Bagchi et al would have similar properties to CD-1 of the elected species of claim 13, thus CD-1 represents an obvious variant of the dye taught by Bagchi et al.

Conclusion

9. Claims 13-20,22-24,26-29 and 34 are not allowed.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Gross whose telephone number is (571)272-4446. The examiner can normally be reached on M-F 9-5:30.

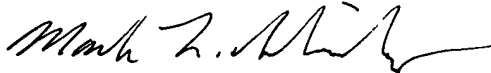
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Paras can be reached on 571 272-4517. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1639

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Christopher M Gross
Examiner
Art Unit 1639

cg


MARK SHIBUYA, PH.D.
PATENT EXAMINER